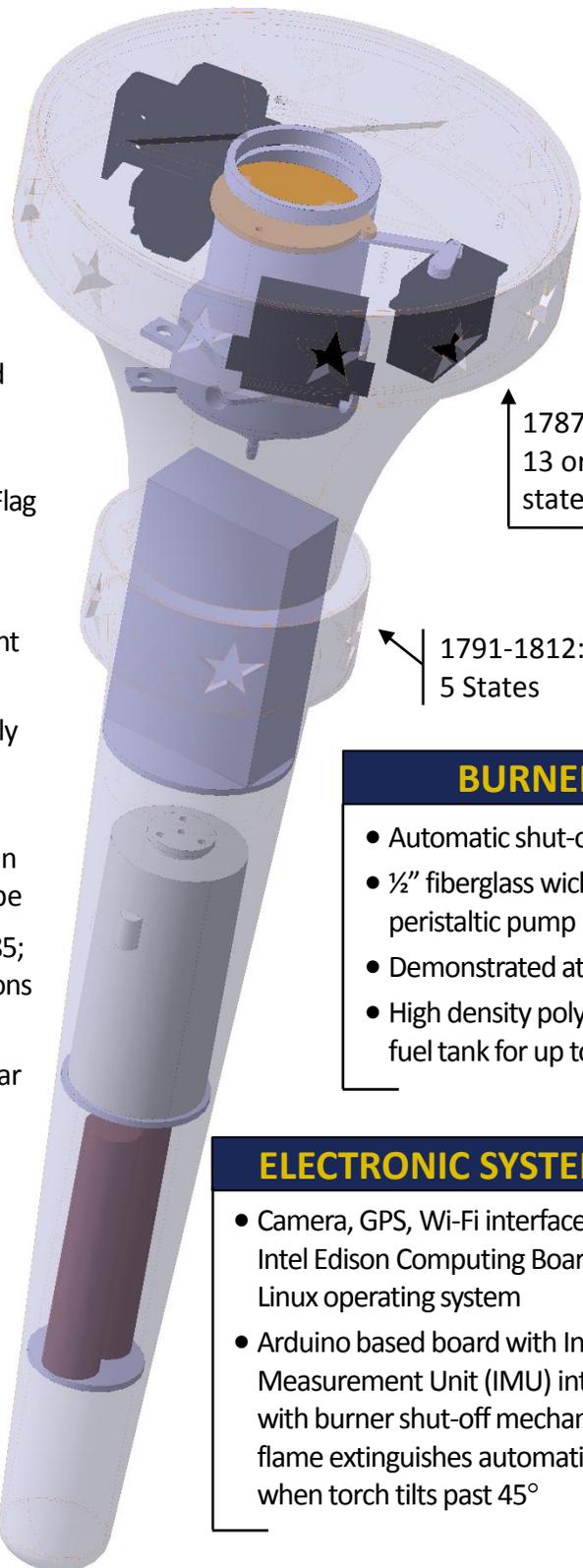




# 2016 Indiana Bicentennial Torch

A High-tech Torch Full of Symbolism!

1816: Indiana  
19<sup>th</sup> State in the Union



1787-1790:  
13 original  
states

1791-1812:  
5 States

## BURNER ASSEMBLY

- Automatic shut-off system
- ½" fiberglass wick connected to 6 V peristaltic pump
- Demonstrated at winds up to 30 mph
- High density polyethylene 180 ml (6 oz.) fuel tank for up to 45 min burn time

## ELECTRONIC SYSTEMS

- Camera, GPS, Wi-Fi interface with – Intel Edison Computing Board and Linux operating system
- Arduino based board with Inertial Measurement Unit (IMU) interfaces with burner shut-off mechanism, flame extinguishes automatically when torch tilts past 45°



## A Hoosier Made High-tech Torch

Designed by a team of Purdue Engineering students, staff, and faculty for a 21<sup>st</sup> century torch relay.

- Inspired by the Indiana State Flag
- 23.5 inch tall, 8 inch max. diameter
- Aluminum shell for total weight under 5 lb
- Highly reliable burner assembly inspired by oil lamps and tiki torches
- Automatic shut-off based on internal electronic gyroscope
- Fueled with Indiana-made E-85; available in over 185 gas stations throughout Indiana
- GPS for high accuracy and near real-time positioning and tracking
- HD camera for photos and videos connected to social media
- Wi-Fi connectivity
- Replaceable & rechargeable Li-ion batteries

MAJOR DESIGN FEATURES

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Indiana Bicentennial  
**TORCH RELAY**



# 2016 Indiana Bicentennial Torch

A Child Friendly Torch Full of Symbolism!

## A Child Friendly Torch

Designed by a team of Purdue students Engineering Projects In Community Service (EPICS), and faculty for a 21<sup>st</sup> century torch relay and education.

- Modeled to resemble the Flagship torch for adults
- 14" high and less than a pound makes the torch easy to carry for youngsters
- Translucent flame will resemble the shape on flag
- Bright colored LED's provide realistic flame effect and playful patterns of light
- 3D Printed plastic housing used for rapid prototyping initial design
- Educational materials on Indiana history being developed by students for students in other counties
- Developing public outreach materials for web sites, social media and Augmented Reality with mobile devices



Indiana Bicentennial  
**TORCH RELAY**

## KEY SYSTEMS

- Programmable strip of LEDs provide bright, colorful patterns
- Small microcontroller called the Trinket controls LEDs
- Power boost system regulates power to Trinket and recharges battery
- Replaceable and Rechargeable Li-Ion battery power the system for multiple hours

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